Mining of the Inland Waterways of North Vietnam
20 Oct 67

20 Oct 67 Blind Memo re Mining of the Inland Waterays of North

17 Oct 67 Blind Memo re Impact on Logistics of Air Attacks South of the 20th Parallel

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Mining of the Inland Waterways of North Vietnam

Summary

Transport on the inland waterways in North Vietnam has accounted for an increasing share of the total traffic moved by modern transport since the bombing began. The mining program against these waterways was first directed at five selected waterways south of 20 degrees North and extended from 26 February through 21 May. This program used conventional acoustic- and magnetic-detonated mines which were not suited for the area where they were employed and the program was not effective. On 20 June, the scope of the campaign was extended to include all lines of communication in the country, with emphasis on the Haiphong area. At this time a more sophisticated magnetic mine was introduced which the North Vietnamese are not believed to have the capability to disarm and the use of the conventional mines was discontinued. Present operational plans call for placing 26,000 mines of which somewhat more than 10 percent have so far been employed.

The potential of the new mine is much better than the conventional mines used earlier. However, it is too early to make a definitive judgment of the effectiveness of the program. No significant adverse effects of the mining of waterways can be determined from the intelligence available at present. During the early months of the program a few craft were destroyed, but the North Vietnamese introduced extensive and well organized countermeasures. The number of small craft observed operating in mined areas during the new campaign has continued at about the previous levels.

Importance of Inland Waterways

1. Water transport in North Vietnam has accounted for an increasing share of total modern transport since the bombing began. In 1966 over 40 percent of the total volume moved by modern

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transport was moved by inland waterways. The increased use of both inland and coastal water transport reflects North Vietnam's growing reliance on means of transport which are less vulnerable to aerial attack.

2. The inland waterway network consists of about 5,500 kilometers of navigable rivers and canals. It is most extensive in the Red River Delta, which is densely populated and the center of agricultural production. The major navigable waterways also connect all of the principal industrial centers of the country and serve as an alternate to rail transport for the industrial economy. Two principal and numerous minor water routes connect Haiphong with Hanoi. The southern route via the Canal des Bambous and the Red River has the largest capacity and is the most heavily used. The northern route uses the Song Thai Binh and Canal des Rapides. These routes are used to move petroleum and other bulk imports from Haiphong and to distribute coal mined in the Cam Pha and Hon Gai areas. Canals and inland waterways in the southern area near Vinh have been dredged since the bombing began and are being used, together with the coastal water route and the land routes, to move supplies south.

Extent of the Mining Program Through 16 October

3. Mining of the North Vietnamese inland waterway system began on 26 February 1967. The program at first was designed to hinder, disrupt, and harass the movement of waterborne logistics craft and was limited to five selected waterways south of 20 degrees North. The magnetic [redacted] and acoustic [redacted] detonated mines were used exclusively.* These waterways were the principal routes for waterborne traffic in the area south of the Red River and included the Song Ma, Song Ca, Cua Sot, Song Giang, and Kien Giang rivers. Mineable areas were delineated in each river, covering the mouth and principal shipping routes a short distance inland. Often, these areas would coincide with rail or highway crossings or transshipment facilities.

[redacted]

4. Mining in these areas continued through 21 May. A total of 146 mines were placed in these five rivers, of which 43 were acoustic-detonated and 103 magnetic-detonated. The location of the mined areas in North Vietnam are shown on the map. The following tabulation shows the relative use of these devices and the rivers most heavily mined:

5. On 20 June 1967, after nearly a month in which no mining operations were conducted, the scope of the program was extended from waterways south of 20 degrees North to include all the principal lines of communication in North Vietnam, particularly those between Hanoi and Haiphong. In addition, a more sensitive magnetic influenced mine for use on land routes as well as waterways was introduced. Employment of the was discontinued.

6. The plan for the use of the is divided into three phases. Phase I includes an attempt to isolate the Hanoi-Haiphong area, to be accomplished by mining the most vulnerable points along the important transportation routes between the two cities.

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Selective seeding of the Lao Cai and Dong Dang railroad lines at priority areas is also part of the plan as well as the interdiction of traffic in the vicinity of Vinh, Cap Mui Ron, Quang Khe, and Dong Hoi, to be accomplished by mining key bridges, fords, and ferry crossings. Phase II includes an attempt to isolate Vinh and to seal off the major lines of communication south toward the DMZ, to be accomplished by mining of the primary transport routes and bypasses. Phase III calls for the expansion of the areas of interdiction of all major land and waterway routes in the country and the use of mining to neutralize all countermeasures taken to reduce the effects of interdiction.* It appears that some parts of each Phase have been implemented, but other parts, such as the attempted isolation of Vinh or the concentrated program against routes south to the DMZ, have not been undertaken.

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8. It is significant that the [redacted] weapons requirement estimated for the three phases of the above plan totals about 26,000. Thus far only somewhat more than 10 percent of this number has been employed.

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Effectiveness of the Mining Program

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9. Very little firm evidence is available regarding the effectiveness

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of the mining of the five southern rivers during the period 26 February through 21 May. On the basis of all available evidence, however, we believe that this mining program was not effective. One ferry boat in Quang Binh Province was reported destroyed during February. Two barges in the Vinh area and six supply craft in southern North Vietnam were destroyed during March and one fishing craft near Ha Tinh during April. traffic continued to move on the mined waterways.

10. There are several reasons why this program was not successful. To be armed the mines required a minimum depth of 12 or 18 feet, a depth seldom found in the areas where they were employed. Moreover, the North Vietnamese immediately instituted extensive and well organized countermeasures. All naval, coast guard, and army units as well as civilian organizations such as fishing cooperatives were ordered to observe where mines were dropped and to mark the areas immediately. Air raid wardens were also instructed to watch the rivers to determine if they were mined. When mines were observed, specially trained teams cleared the waterways with nets pulled between sampans, and other teams disarmed or detonated the mines. While these procedures were being carried out, warning buoys and cables were placed in the rivers to warn craft away from mined areas.

11. Very little concrete evidence is yet available regarding the effectiveness of the mining program which began on 20 June. There is some scant evidence, however, that the effects of have been more deleterious than the effects from the previous program. The potential of the is apparent in the seeding of the Ben Thuy ferry crossing site on 20 June. the ferry at this site did not operate for two months, although during this period the North Vietnamese employed other ferry sites and the movement of traffic continued. damaged the northern low-water ferry slip on the railroad bypass around Hanoi. This damage did not halt the movement of traffic, however, because the northern high-water ferry slip was in use. Apart from these examples no evidence of any significant disruption to inland waterway traffic resulting from the use of the . The number of small craft observed operating in mined areas during the new program has continued at about the previous levels. some difficulties are being created by the mining in specific areas. Some land areas denied because of mines.

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12. There is no evidence thus far that the North Vietnamese have developed a capability to disarm the [redacted]. There are strong supporters of the [redacted] who feel that the North Vietnamese will not be able to develop this capability. On the other hand, the [redacted] program is still just getting underway. However, the North Vietnamese have shown over the past two-and one-half years a considerable capability for developing simple and effective countermeasures to modern weaponry.

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Impact on Logistics of Air Attacks South of the 20th Parallel

During the first nine months of 1967 over two-thirds of the attack sorties flown over North Vietnam were against targets located south of the 20th parallel. If the entire effort of the Rolling Thunder program were concentrated in this area, the weight of attack would increase by over 46 percent. In the short-term, an attack of this scale would impede the flow of supplies to South Vietnam but only until additional countermeasures could be implemented. Within a few weeks the North Vietnamese would be able to maintain an effective and reliable logistics operation.

The major problem resulting from a concentrated attack would be the need to augment the work force required to keep lines of communication open. It is estimated that over 20,000 workers, or about a 30 percent increase over the present work force in this area, would be required. It would take a few weeks to shift experienced repair crews to the south and to arrange for the additional flow of repair materials to the area.

On the basis of their known countermeasures and demonstrated competence in responding to air attack, it is estimated that the capacities of lines of communication have not been reduced by more than 20 percent. Even if a more intensive program were to inflict a reduction in route capacities of as much as 50 percent, this would

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still be well above the low logistic requirements in the area. The essential economic and military supplies that must move south of the 20th parallel total only about 500 tons a day. Most of these supplies are consumed around urban areas such as Thanh Hoa and Vinh.

The vital movement of military supplies for the Communist forces in the DMZ area, in Laos, and in South Vietnam is estimated at about 70 tons a day. To handle this flow of supplies the North Vietnamese maintain four major highway routes to the border areas of Laos and South Vietnam with uninterdicted capacities ranging from 500 tons to 950 tons a day. Logistic capabilities are also increased by the use of lesser roads and inland and coastal waterways. Even if the capacity of all routes were reduced by as much as 50 percent, no one route would be used to even 10 percent of its interdicted capacity. With this kind of cushion, the possibilities of air attack placing a meaningful ceiling on North Vietnam's ability to move military supplies to the south approach zero.

CIA/OER
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